A Household Hazardous Waste Collection Center

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Household Hazardous Waste Collection Center

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Lakes Region Planning Commission
Household Hazardous Waste Collection Center

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Executive Summary

In 1986, the Lakes Region Planning Commission (LRPC) held the first regional household hazardous waste (HHW) collection program in the Lakes Region. Since then, 14 collections have occurred.

In 1996, the Commission completed a study of permanent Household Hazardous Waste (HHW) collection programs in New England. That report concluded that the LRPC-administered collections achieved relatively high marks in HHW collection efficiency and participation. This report continues to show that this region's success, with increased participation and generally lower costs for HHW collections, continues to occur because of public interest in reducing risks to human health and the environment, as well as favorable market conditions.

During this time, the NH Department of Environmental Services offered the LRPC funding to be used for the construction of a HHW collection center. The LRPC received and encumbered the funds valued at approximately $29,000. As part of its current FY-99 budget, the LRPC proposes to expend these, plus additional funds that the LRPC had accumulated over the past 12 years, to establish a HHW Collection Center. The LRPC proposes that these funds be used (a) to offset the development costs to the LRPC and a community that would be willing to locate a HHW collection center within its jurisdiction, and (b) to promote greater awareness for the safe removal and elimination of used, household hazardous waste.

Without convenient access to hazardous waste disposal, residents often improperly dispose of toxic, flammable, and corrosive materials. The liability of a household hazardous waste collection center is no greater than the current liability of a landfill or transfer station. The liability issue is a function of proper training and adequate facilities to handle household hazardous waste. There are more than 400 permanent household hazardous waste facilities located in the United States. There has yet to be a "significant event" at a HHW facility due to the fact that a permanent storage facility is designed to minimize these risks.

The information in this report reflects two favorable trends for advancing toward the development of a HHW collection center:

- The availability of adequate seed funding to locate a HHW Collection Center in the region; and

- The willingness of the NH Department of Environmental Services to promote HHW Collection Centers with state regulatory policies regarding the use and control of these facilities.

While the final authorization to expend the funds must still be made by the LRPC Commissioners, the discussion of where a facility might be located has already begun. Within the next few months, additional communication among interested communities and partners will help determine the ultimate outcome of this renewed effort to reduce risks to human health and eliminate pollutants from the soil and waters of the Lakes Region.

Introduction

Household hazardous waste (HHW) includes many common products used in the home, garden, lawn, and garage. The products are flammable, reactive, or explosive when mixed with other substances, or they are corrosive. Drain cleaners, antifreeze, pesticides, and oil-based paints are common examples of HHW.

The importance of safe, convenient disposal of HHW is a growing issue for most municipalities. Various studies have indicated that per household, an average of 15.5 pounds of household hazardous waste is thrown into the trash every year.[1] Household hazardous waste is also disposed of in other ways. Research on homeowners has reported that certain products, such as used oil, have been most frequently poured down storm drains.[2] Disposing of HHW such as used oil in drains threatens groundwater. New Hampshire communities, like those in other states, rely on groundwater for drinking water. Once hazardous waste finds its way into our aquifers, they may never be decontaminated.

The Lakes Region includes 31 towns and municipalities that depend on clean water for domestic use as well as for tourism. Lake Winnipesaukee, Squam Lake, the Pemigewasset River, and other significant waters in the Lakes Region are natural resources that we want to keep clean and safe.

Annual HHW collections are a safe way to dispose of common household products that are toxic, flammable or corrosive. However, there is an increasing awareness that one-day events are neither frequent enough nor convenient. For example, moving companies will not transport some HHW. People who need to dispose of HHW when moving are faced with little or no option other than to put it in the trash or leave it in the house for the new occupant to be faced with the same option. Such practices have been known to ruin real estate transactions. There is anecdotal evidence that one-day annual events heighten awareness of the dangers of HHW leading to increased unsafe disposal in landfills.[3]

Between 1995 and 1997 there has been a 97% increase in the number of collection programs. In 1995, the Waste Watch Center identified 1,677 programs; in 1997 they identified 3,312. While there is very little state or national data, the Waste Watch Center

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[1] Dana Duxbury, "Household Hazardous Waste Management," in *Proceedings of the Sixth National United States Environmental Protection Agency Conference on Household Hazardous Waste Management*, Seattle, Washington, December 3-7, 1991, 1.
[2] Ibid., 1.
3 Ibid., 3.
[4] Waste Watch Center, "A 97 Percent Increase since 1995," *Household Hazardous Waste Management News*, v. VIII, No.35, August 1998, 1.

has reported that after one single day collection, the HHW in the municipal solid waste stream increased. Researchers think that once those who did not participate in the collection day knew what household hazardous waste was, and why they should be concerned about having it in their home, they threw it out.

People working in pollution control are increasingly looking toward permanent HHW Collection Centers as a way to decrease the improper disposal of household hazardous waste. According to Nancy Misra, a HHW Program Supervisor in Minnesota, "…single-event collections showed us that while one-day collections are a great way to raise public awareness, they do not offer a long-term solution to the problem". Their experience has also been that single-event collection costs per participant were nearly twice those of permanent sites.

Finally, the current statewide program, partially funded by DES, is not a program we should assume will always exist. Longer range planning and implementation is needed to reduce HHW in the Lakes Region.

The following report reviews the LRPC's recent experience with the annual one-day collection events and suggests that *in addition to the annual one-day collections,* a permanent collection center be established somewhere in the Lakes Region. A permanent collection center, along with the one-day collection events, is the next step in our efforts to reduce unwanted pollutants from the soil and waters of the Lakes Region.

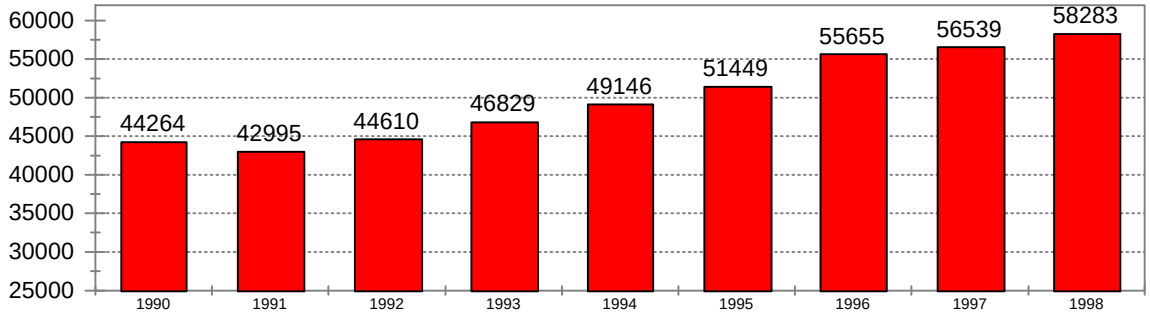
[5] Liz Gelbmann, "Full-Time Hazwaste Disposal," *Waste Age,* March, 1991, 147-148, 150-151.

Annual Lakes Region Single-Day HHW Program
1990-1998

Households Served

The total number of households served by LRPC's one-day HHW collections has increased from 44,264 in 1990 to 58,283 in 1998. (Source: NHOSP, Current Estimates and Trends in New Hampshire's Housing Supply, Update: 1996)

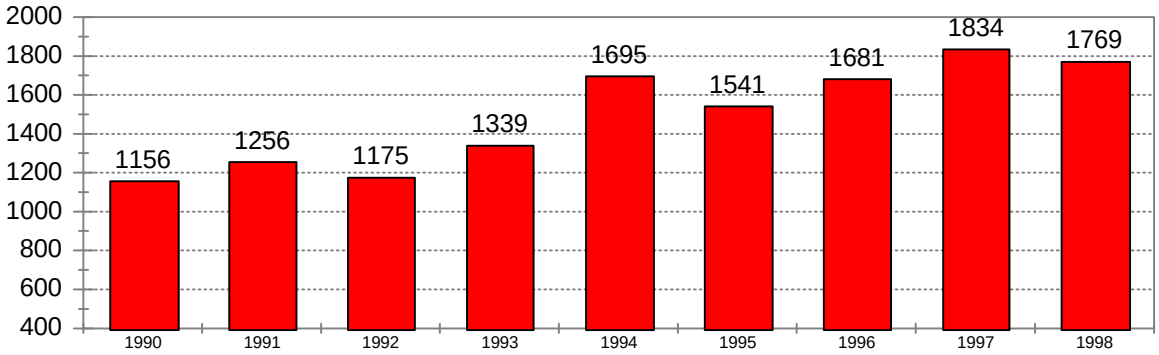
Number of Households Served
1990-1998



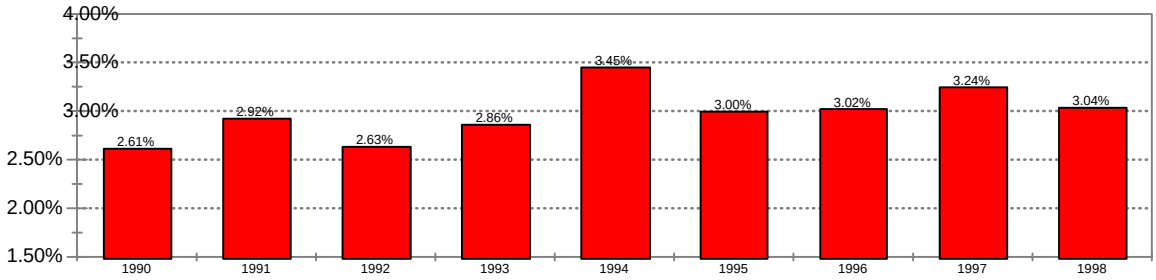
Household Participation

Since 1990, the LRPC has experienced an increasing number of households that participate in the one-day collection events. In 1990, 1,156 households participated in the annual one-day collection event; in 1998, the number of households that participated was 1,769. These data represent household participation in nine one-day annual collection events. A map of current collection sites is at the end of this report.

Household Participation
1990-1998



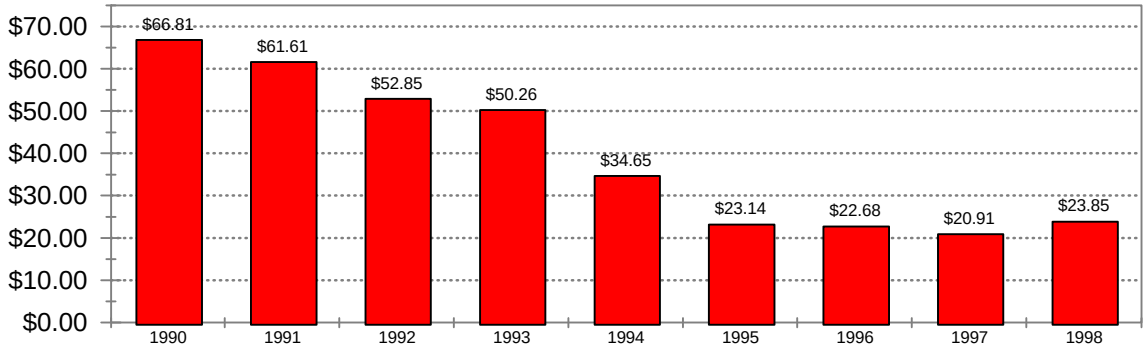
Per Cent Household Participation
1990-1998



Cost Per Participating Household

The chart below shows that the cost per participating household has decreased from $66.81 in 1990 to $23.85 in 1998.

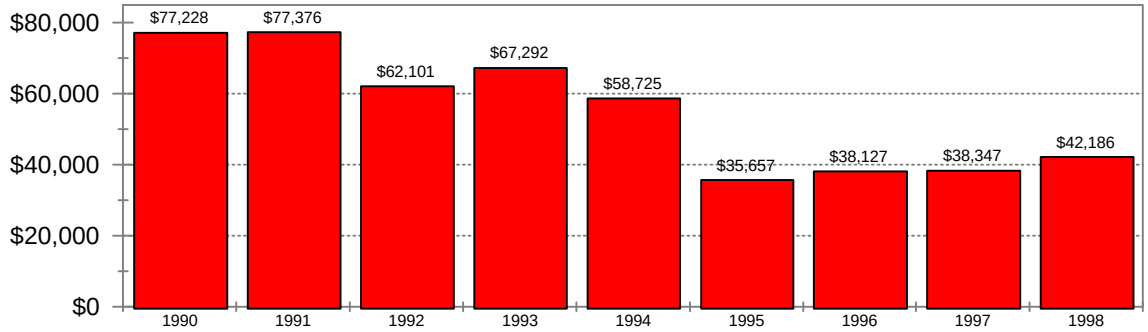
Cost Per Participation Household
1990-1998



Total Costs

The total cost for the one-day collection event has also decreased since 1990. In 1990, the total cost was $77,228; in 1998 the total cost was $42,186 or a decrease of 45%.

Household Hazardous Waste Total Cost
1990-1998



Participation by Town

Clearly, LRPC's experience with the one-day collection programs has been positive. Of the nine one-day collection events in three of the last four years, the locations and number of participating households have been as follows:

Number of Participating Households, by Site

Location	1990	1995	1998
Belmont	-	-	90
Bristol	111	138	222
Franklin	-	120	125
Gilford	195	237	225
Laconia	224	225	190
Meredith	165	202	181
Moultonborough	148	219	159
Ossipee	-	71	141
Wolfeboro	181	329	436
Tilton	132	-	-
Total	1156	1541	1769

Historically, the Wolfeboro and the Gilford/Laconia locations have had high participation levels, though Wolfeboro and Bristol are the two collection locations that have seen increases in each of the three years in the above table. Participation at the Ossipee location doubled from 1995 to 1998.

Single-Day Collections and HHW Collection Centers

Below is a sampling of quantifiable evidence that permanent facilities collect more material than single-day collections. These data are taken from research done by the city of Keene in 1996, supplemented with LRPC collection data.

	Avg. Pounds HHW per Participant	Household Participation Rate	Reuse Program	Disposal Cost Savings/Yr w/Reuse
Keene Single Day Collections 1994-1996	24.9	3%	No	
Lakes Region Annual One-Day Collections 1995 - 1998	N/a	3.1%	No	
Permanent Facilities				
King County, Washington	50	5%	Unknown	Unknown
Tri-County, Minnesota	43	6%	Yes	$24,000
Dane County, Wisconsin	60	n/a	Yes	$15,000
Pima County, Arizona	42.5	3%	Yes	$100,000
San Bernardino, California	67	6-8%	Yes	Unknown
Tacoma, Washington	48.5	8%	Yes	Unknown
Chittenden County, Vermont	33.9	12%	Yes	$4,500
Rutland County, Vermont	n/a	5%	No	Unknown
Average	49.3	6%		

Data based on information from Household Hazardous Waste Management News, interviews with facility managers and City of Keene household hazardous waste data. Chittenden County figures include Conditionally Exempt Small Quantity Generator Material (material from small businesses.)

It should be noted that the above facilities serve relatively large populations. If a Lakes Region HHW Collection Center were able to achieve similar results to the facilities in the above survey, there would be an increase in the amount of material collected. A permanent HHW Collection Center offers better convenience, the ability to collect and process greater amounts of household hazardous waste, and reduced environmental, human health and safety risks. In addition, the reuse or "swap" programs represent additional ways to reduce disposal costs and increase participation.

Existing HHW Collection Centers in New Hampshire

Nashua, New Hampshire

The city of Nashua established a two-year pilot project for a HHW Collection Center in 1996. Prior to 1996, the Nashua Regional Planning Commission (NRPC) had been conducting annual one-day collections in Milford, Merrimack, Nashua, and Hudson.

The permanent center is located at the Nashua Public Works Garage, about a mile from the landfill. Nashua owns the facility, Safety-Kleen (LRPC's current hauler) is the contracted generator, and the NRPC is the program manager. There are no current satellite sites, but there are plans to have some in the future. NRPC also plans to do more communication and promotions.

The participating NRPC communities are Amherst, Brookline, Hollis, Hudson, Litchfield, Merrimack, Milford, Mount Vernon, Nashua, Pelham and Windham. The collection center is also available for businesses that are small quantity generators although to date, only five (5) businesses have participated.

The Nashua HHW Center is currently open one day a month for seven consecutive months (April through November). The hours of operation are from 8:00 a.m. to Noon. Containers that become completely filled during a collection are removed on the same day; partially filled containers are stored at the HHW Collection Center in an United States Environmental Protection Agency (EPA) approved structure.

To establish the center, the city spent approximately $24,000 on site improvements. This amount excludes the cost of the environmentally-approved HHW storage building that cost approximately $25,000 and was paid for by an EPA grant.

Their permit process was problematic according to John Vogl, a Nashua Regional Planning Commission planner. When Nashua applied for the permanent HHW center, they were required to obtain two permits: a Solid Waste Facility permit for the site and a Hazardous Waste Transfer Facility Permit to accept the business generated hazardous waste. (In October 1997, revised solid waste rules by the NH Department of Environmental Services clarified the regulation of HHW as hazardous waste placing HHW centers under the jurisdiction of the Hazardous Waste Rules rather than Solid Waste Rules. The Transfer Facility Permit is required under the Hazardous Waste Rules for small quantity generators. If Nashua applied after October 1997, it would only have had to apply for the Transfer Facility Permit.)

Households Served

Compared to the number of households served during the one-day LRPC collections, the number of households served by Nashua's HHW collections is larger, as might be expected. In 1990, Nashua served 50% more than LRPC; in 1995, Nashua served 38% more households.

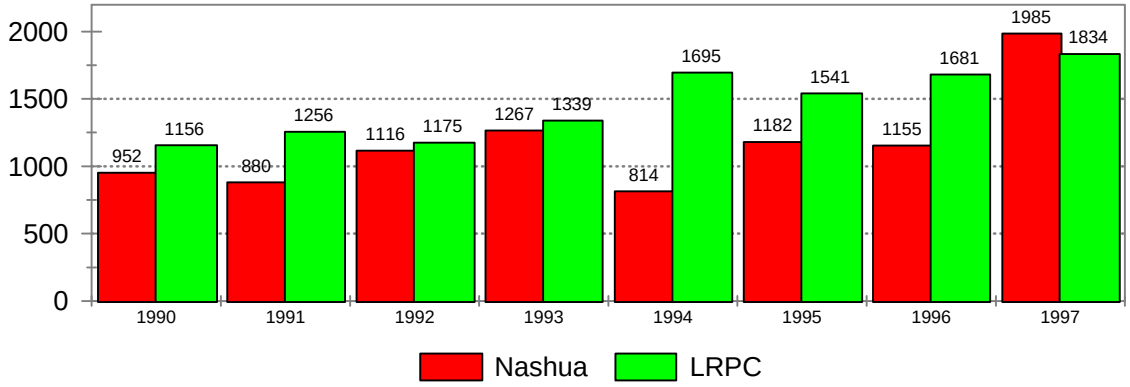
Number of Households Served

	Nashua	LRPC
1990	67,138	44,264
1995	71,061	51,449

Household Participation

Prior to the permanent HHW Collection Center in Nashua, household participation in the one-day collection events was relatively low. As compared to LRPC's region, with a smaller number of households, fewer households participated in the Nashua collection between 1990-1996.

Household Participation 1990-1997
Nashua and LRPC



In 1997, the first full year of Nashua's HHW Collection Center, the number of households participating in the multiple collection days increased by over 800 households in one year. Based on April, May and June 1998 reports from Nashua, the number of households participating in 1998 is on the same pace as in 1997.

Currently, municipalities that belong to the Nashua Regional Solid Waste Management District pay for the Nashua HHW Collection Center costs. The dues are based on a flat fee, plus a per capita amount. Pelham and Litchfield are the only two towns not part of that District; however, they do pay a base fee. The NRPC also applies for the HHW grant monies much as the LRPC does for our participating communities.

According to Sally Hyland, Waste Management Coordinator for the city of Nashua, it's difficult to measure the program's success based only on a cost/savings analysis. She cited an incident where, prior to their current permanent HHW Collection Center, someone discarded pool chemicals in the landfill and the reaction sent an employee to the hospital. Reduced environmental, human health and safety risks are other benefits derived from a HHW Collection Center.

Nashua is hopeful that increased publicity in the future will lead to greater levels of participation in the future.

Keene, New Hampshire

Keene opened a new, permanent HHW Collection Center in 1998 but has had only one collection thus far. Like Nashua, Keene plans to hold monthly HHW collections from spring through fall. There are currently no satellite sites, but they are envisioned in the future. The differences between the Keene and Nashua HHW Collection Centers are that Keene's center is located at the landfill, they don't have any small businesses participating, and they have a 'swap shop' in the building dedicated to the HHW collection. In addition, Keene's site has two prefab storage units to Nashua's one, and they also upgraded an existing building for storage, recycling and 'swap shop' activities.

Duncan Watson, manager of the landfill, works with local real estate offices providing information on what to do with HHW when moving. He also sends a recycling calendar to every household in Keene. The community surveys done by Keene indicate that the homeowner awareness of HHW is low. To address this problem, Mr. Watson emphasizes community education and awareness. For one of Keene's collections, a local radio station broadcasted from the site and gave away free snack food. DES reported that the household participation rate increased considerably as a result of the publicity.

Mr. Watson would someday like to have Keene employees become trained HHW handlers as well as providing a local chemist. He also wants the city of Keene to assume generator status someday. The city would then keep the HHW Collection Center open during the

week. In Mr. Watson's view, to be successful, a permanent HHW center must be convenient and "once-a-month" collections are not convenient; however, they are a significant improvement over annual single-day collections.

Keene budgeted approximately $150,000 for its center including engineering, design, building, and storage units. Again, their center is much larger than the Nashua center. It hosts two prefab structures and a refurbished building.

Keene also uses a different reporting format so a comparison of participation rates is difficult. According to Mr. Watson, Keene services 27 communities and approximately 70,000 people. His reports to DES indicate that the Keene HHW Collection Center serves approximately 18,000 households

Unlike Nashua, Keene only had to receive an EPA Hazardous Waste Identification Number to operate their HHW Collection Center. The EPA Identification Number was obtained from the NH Department of Environmental Services. Keene paid nothing for this since there are no fees or other costs to receive a Generator Number.

Mr. Watson also recalled experiences about people putting HHW in the landfill and that created problems. Last spring, Keene lost a $250,000 compactor because of a fire in the landfill. The cause of the fire is believed to be the result of someone putting some flammable HHW into their trash which ultimately found its way into the landfill. With additional education and more convenient HHW disposal options, these incidents can also be eliminated or greatly reduced.

Keene's HHW Collection Center is paid for by the solid waste budget that is set up as an enterprise fund. All services are paid for by tipping fees received at the landfill. Other communities are billed at a per capita rate. Keene also applies for the HHW grant monies administered by the NH DES.

Options for a HHW Collection Center in the Lakes Region

There are a number of options that can be considered by Lakes Region communities to supplement the current annual one-day collection events. These include, but are not limited to, the following:

A. One HHW Collection Center outfitted with a prefab or other storage facility;
B. Two HHW Collection Centers outfitted with storage facilities; and,
C. One or two HHW Collection Centers outfitted with storage facilities with monthly Satellite Sites(s).

A. One HHW Collection Center outfitted with a storage facility

- Locating a storage facility at a landfill, transfer station or recycling center in a community that has had high participation in the one-day annual collections is one possible option. This is similar to what Nashua and Keene have done.

- The site could be open to serve the households from the more than 20 LRPC communities that now participate in the annual one-day event.

- It might be open on a regular schedule, perhaps a day a month, up to 6 months a year to start.

- A contracted, licensed hauler would be the Generator, thereby responsible for any waste generated, exactly like the current one-day collection.

- No permit is required. The EPA Number can be obtained through the DES Reporting Section at no cost.

B. Two HHW Collection Centers outfitted with storage facilities

Due to the region's land and water geography, two permanent HHW Collection Centers would offer greater flexibility and benefits. Two sites would provide more opportunities for education and outreach and would also promote more awareness, not to mention the increased convenience for a greater number of people. All of the other items listed under A above would also apply. This option, however, may prove too costly as a starter step toward a collection center.

C. One or Two HHW Collection Centers outfitted with storage facilities with monthly Satellite Sites(s)

- This is a long-range plan.
- Operationally, a HHW Collection Center would be open at the same time a collection was being conducted at another site. The collection at the other site would be operated similarly to the way the current one-day collection is conducted.
- A permit may be required, such as a Hazardous Waste Transfer Facility Permit by the owner of the facility where it is located. The cost of the permit is $3,000 but the DES Permitting Department can be petitioned to waive this fee. This permit is new and the applicant must go through a Hazardous Waste Siting Board that was mandated by the Legislature this year. To date, the Board has never met.
- A licensed hauler would still need to apply for an EPA Number.

Insurance/Legal Issues

Without convenient access to hazardous waste disposal, residents often improperly dispose of common household materials that are flammable, reactive and corrosive. These inadequate actions increase risks to human health and safety as well as the environment. The liability of a household hazardous waste collection center is no greater than the current liability of a landfill or transfer station. The degree of liability issue is a function of proper training, management procedures, and adequate facilities to handle household hazardous waste. There are more than 400 permanent household hazardous waste facilities located in the United States. There has yet to be a "significant event" at a HHW facility due to the fact that a permanent storage facility is designed to minimize these risks.

To ensure compliance with all handling and safety issues, the LRPC proposes that a first HHW Collection Center, like the current Lakes Region annual one-day collections, be maintained by an EPA licensed hauler who would maintain generator status. This is exactly the same situation that currently exists for the annual one-day collections, where all participating municipalities and LRPC HHW representatives are indemnified by the hauler. Of course a municipality would have responsibility to ensure that the HHW Collection Center is free from defects and unauthorized access when the Generator is not on site and the Center is closed. The EPA uses discretionary policies on a case by case basis in liability issues. The NH Department of Environmental Services continues to support the assignment of risk associated with Generator status to a vendor qualified to evaluate and select proper disposal methods for both annual one day and permanent collection centers. A town should also consult its attorney and local building regulations for additional legal information and review.

Regulatory Requirements of Permanent HHW Collection Centers

Sponsors of one-day HHW collections are required to notify the Department of Environmental Services (DES) and follow hazardous waste Generator Requirements found in Chapter Env Wm 500 of the New Hampshire Hazardous Waste Rules. Permanent HHW facilities that only collect homeowner waste onsite are also required to notify DES and follow these same rules and requirements.

Satellite HHW collections can occur with notification to DES; they too must follow hazardous waste generator requirements found in Chapter Env-Wm 500 of the New Hampshire Hazardous Waste Rules. However, a registered hazardous waste transporter must haul the collected waste to a permitted hazardous waste treatment/storage or disposal facility. A permanent HHW collection center that has a Hazardous Waste Transfer Facility Permit could be used to store hazardous wastes from satellite sites for up to 10 days after they are collected.

Solid waste facilities may also collect mercury containing devices, fluorescent bulbs, pesticides and antifreeze as long as they meet DES Universal Waste Policy requirements. These waste can then be transported to another universal waste handler (a permanent HHW collection center can be the handler), an approved recycling center, or an approved disposal facility.

Paints may be collected for recycling at solid waste facilities, but must be transported to an approved recycling facility for recycling.

Best attributes of a HHW Collection Center

According to an article from Household Hazardous Waste Management News (March, 1995), the best attributes of a HHW program include some of the following:

1. A comprehensive program with goals for HHW collection, education and toxicity reduction. NHDES also shares this view. Education and ways to reduce HHW in a community are essential.

2. Be innovative and experimental. Keene's "free hot dogs" is a good example of innovative publicity, as is LRPC providing volunteers with t-shirts and free snacks for helping publicize or take surveys at the collection. Product exchanges represent another way to experiment with reducing the amount of household hazardous waste that enters the solid waste streams. They also help with increasing participation.

3. Involve other public agencies (fire, solid waste, sewer, health, schools, water, etc.) and private firms. Nashua has a close working relationship with the city fire and public works departments.

4. Operate a facility on a predictable schedule. Consistency and regularity are essential to achieving long-term success.

5. Train staff to meet health and safety provisions and proper handling techniques.

6. Devote about 10% or more of the budget to education and toxicity reduction.

Human health and safety as well as environmental protection are hallmarks of a permanent household hazardous waste collection center. The Lakes Region Planning Commission advocates for convenient, cost effective management of household hazardous materials for the residents of the Lakes Region. The LRPC believes it is possible to achieve positive results with a combination of a continuous public awareness program, and a household hazardous waste collection center as a supplement to the annual single-day HHW Collection Day.

Scenarios for the development and operation of a HHW Collection Center, including funding, are available for presentation from the LRPC. Please contact us at 279-8171 if your community is interested in additional information.

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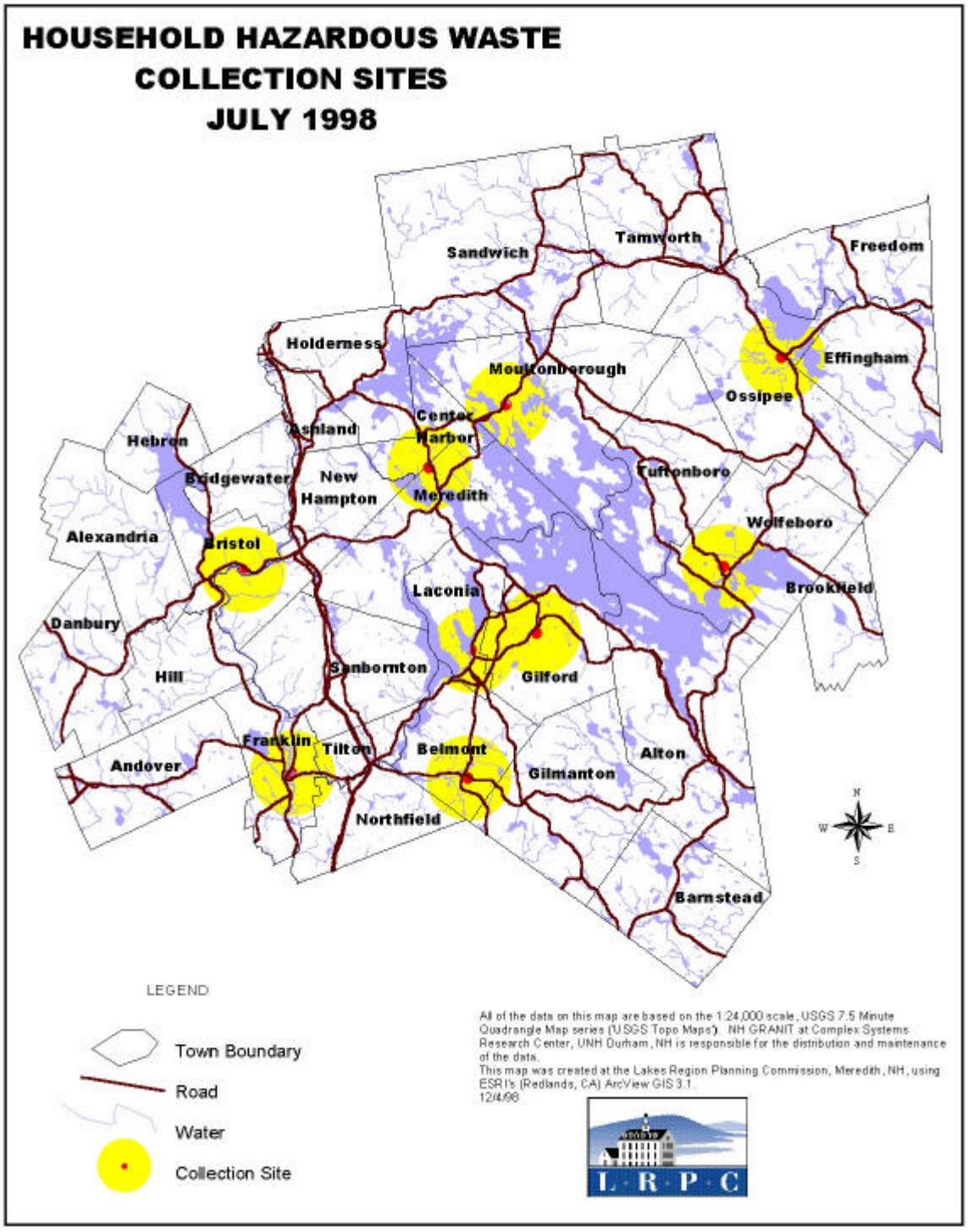
HOUSEHOLD HAZARDOUS WASTE
COLLECTION SITES
JULY 1998
Sandwich
Tamworth
Freedom
Holderness
Effingham
Moultonborough
Ossipee
Center Harbor
Ashland
Hebron
Bridgewater
New Hampton
Meredith
Tuftonboro
Wolfeboro
Alexandria
Bristol
Laconia
Brookfield
Danbury
Hill
Sanbornton
Gilford
Franklin
Tilton
Belmont
Alton
Andover
Gilmanton
Northfield
Barnstead
N
W
E
S
LEGEND
Town Boundary
Road
Water
Collection Site
All of the data on this map are based on the 1:24,000 scale, USGS 7.5 Minute Quadrangle Map series (USGS Topo Maps). NH GRANIT at Complex Systems Research Center, UNH Durham, NH is responsible for the distribution and maintenance of the data.
This map was created at the Lakes Region Planning Commission, Meredith, NH, using ESRI's (Redlands, CA) ArcView GIS 3.1.
12/4/98
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